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PREPARED BY:



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### I. INTRODUCTION

### PROJECT SITE

The proposed J street Subdivision consists of development of 13 new residential lots and a parcel for stormwater management as well the adjustment of lot lines for two existing lots due to the development of 550 new linear feet of town road along Mckinley Court in the Town of New Windsor, New York. The design of stormwater management practices receiving stormwater from Mckinley Court and adjoining roads was addressed during development of The Mount Airy Subdivision to account for the full build out of the upstream areas, including the J Street Subdivision site. The 02-02-07 report prepared by this office entitled "Modification to Engineers Report For Mount Airy Estates Stormwater Quality Management" additionally identified temporary Sediment and Erosion controls during construction of portions of the Mount Airy Subdivision that will remain in place until completion of construction of the J Street subdivision.

### QUANTITATIVE METHOD OF ANALYSIS

Sediment and Erosion Control practices have been selected using the New York State Guidelines for Urban Erosion and Sediment Control.

The design and selection of Stormwater Management practices was conducted using *The New York State Stormwater Design Manual* as provided by the New York State Department of Environmental Conservation.

### STORMWATER MANAGEMENT OBJECTIVES

It is the objective of this report to identify the means proposed to minimize erosion and sediment problems on land undergoing urban development as well as to meet New York State Department of Environmental Conservation pollutant removal goals.

### II. DRAINAGE ANALYSIS

### POST DEVELOPMENT DRAINAGE ANALYSIS

Analysis of the full build out peak runoff rates and hydrology was conducted during the development of the Mount Airy Subdivision in the 02-02-07 report prepared by this office entitled "Modification to Engineers Report For Mount Airy Estates Stormwater Quality Management". The following summary of the analysis conducted is provided below.

**Design Point 3A:** Stormwater runoff from Colonial Drive, Cherry Tree Way, Molly Pitcher Drive, Encampment Drive, Red Coat Drive, Panorama Drive, John Paul Jones Lane, Betsy Ross Ridge, Hamilton Way, McKinley Court and portions of Colonist Trail, Liberty Ridge and Independence Drive exit the property from the principle and emergency spillways to SMP 2. This area consists of 95.93 acres of developed ¼ acre lots on C type soils. Stormwater runoff from the J Street Subdivision is directed to SMP 2 via the road stormwater collection system and partially detained within SMP 3 prior to reaching SMP2.

Proposed Drainage Area to Design Point	1 Year Storm CFS	10 Year Storm CFS	25 Year Storm CFS	100 Year Storm CFS
3a	10	121	152	159

Figure II-1 PROPOSED CONDITIONS ANALYSIS

### **III. WATER QUALITY CONTROLS**

### WATER QUALITY VOLUME (WQv)

Unified Stormwater Sizing Criteria is used to determine the required water quality volume. The referenced formula below is used to determine this volume.

Proposed Design Point	REQUIRED WQv (ac-ft)	TOTAL PROPOSED WQv (ac-ft)	PROPOSED STORM WATER PRACTICES
3a	3.45	3.69	SMP 2

Figure III-1 WATER QUALITY VOLUME

### STORMWATER MANAGEMENT PRACTICES

Two relevant existing stormwater basins where proposed during development of the Mount Airy Subdivision to provide first flush water quality and quantity control for the full build out of the drainage area, including the J Street Subdivision. The discussion of the existing basins has been updated to address the criteria of the *New York Stormwater Design Manual*.

**SMP # 2** is an existing micropool extended detention pond located near the end of Revere's Run Road. The following key considerations have been addressed in the design on this stormwater management practice.

### Feasibility:

- The contributing drainage area consists of 95.93 acres
- SMP 2 is not located within jurisdictional waters

### Conveyance

- A forebay has been provided at each pond inflow point providing greater then 10% of the total design flow to the practice
- Rip-rap has been provided at pond inlets and principle spillway outlets to reduce flow velocities to non erosive velocities
- The pond is to be located in an area consisting of C soils and a pond liner is not required
- The outlet weir has been designed with a non erosive exit velocity of 3 fps during extreme floods however polypropylene erosion control blanket has been provided along the earthen spillway to further prevent potential scour of the spillway.

#### Pretreatment

- The proposed forebay consists of a separate cell containing 20% of the water quality volume where a minimum of 10% is required
- The proposed forebay shall be 4 feet deep
- Access to the forebay shall be available by way of Revere's Run Road
- The forebay outlet has been designed with a non erosive exit velocity of 1.3 fps during flood events however polypropylene erosion control blanket will further prevent potential scour of the earthen spillway.

#### Treatment

- 22% of the water quality volume shall be contained within a permanent pool where a minimum of 20% is required
- The length to width ratio of the permanent pool is 2.5:1
- An irregular shaped permanent pool with a long flow path has been selected through the system for water quality treatment
- The entire practice is contained within a security fence and a safety bench is not required
- An aquatic zone has been provided that consists of pilot channels and plantings throughout the shallow water zones of the practice

### Landscaping

- A pondscaping plan has been provided to indicate how aquatic and terrestrial areas will be vegetatively stabilized and established
- A maintenance easement has been provided that extends approximately 25 feet outward from the maximum water surface elevation
- Woody vegetation will not be planted or allowed to grow within 15 feet of the embankment and 25 feet from the principal spillway structure

#### Maintenance

- Maintenance responsibility for the pond and surrounding area shall be provided by means of a Stormwater Maintenance District
- Sediment removal from the forebay shall occur after 50% of the original forebay capacity has been filled
- Access to the practice shall be available by way of Revere's Run Road
- Pumping shall be required to drain the pond for maintenance
- A gate valves shall be located at the end section of the 12" HDPE outlet
- The maximum side slopes of the pond shall be 3:1

**SMP # 3** is an existing dry detention pond with a permanently wet forebay located along Mckinley Court near the intersection with Molly Pitcher Drive. The following key considerations have been addressed in the design on this stormwater management practice.

### Feasibility:

- The contributing drainage area consists of 46 acres
- SMP 3 is not located within jurisdictional waters

### Conveyance

- A forebay has been provided at each pond inflow point providing greater then 10% of the total design flow to the practice
- A diversion structure has been provided to direct a portion of stormwater runoff from the collection system under Molly Pitcher Drive to the practice
- Rip-rap has been provided at pond inlets and the principle spillway outlet to reduce flow velocities to non erosive velocities
- The pond is to be located in an area consisting of C soils and a pond liner is not required

#### Pretreatment

- The proposed forebay consists of a separate cell containing 5% of the water quality volume
- The proposed forebay shall be 4 feet deep
- Access to the forebay shall be available by way of McKinley Court
- The forebay outlet has been designed with a non erosive exit velocity of 2 fps.

### Landscaping

- A pondscaping plan has been provided to indicate how aquatic and terrestrial areas will be vegetatively stabilized and established
- A maintenance easement has been provided that extends approximately 25 feet outward from the maximum water surface elevation
- Woody vegetation will not be planted or allowed to grow within 15 feet of the embankment and 25 feet from the principal spillway structure

#### Maintenance

- Maintenance responsibility for the pond and surrounding area shall be provided by means of a Stormwater Maintenance District
- The principle spillway shall be equipped with a trash rack and it is accessible from dry land
- Sediment removal from the forebay shall occur after 50% of the original forebay capacity has been filled
- · Access to the practice shall be available by way of McKinley Court
- A riser shall be located within the embankment
- A pond drain has been provided by a 8" pipe fitted with a gate valve to provide an
  effective diameter of 4" to drain the pond.
- Gate valves shall be located within the riser in a manner to be accessible and operable
- The maximum side slopes of the pond shall be 3:1

### STORMWATER MAINTENANCE

 A stormwater maintenance district will be responsible for proper maintenance and repair of the
subdivision's drainage system. Maintenance of the various components of the system is described
below.

The proposed stormwater management practices on site will be inspected on a monthly basis and after all major storm events (e.g., after each event where 2.8 inches of rainfall is exceeded in a 24 hour period). During the inspection, the New York State DEC Maintenance Inspection Checklist should be utilized to properly maintain the practices.

In addition, the following items should be checked and repaired as needed:

Embankment areas and emergency spillways will be inspected annually and after all major storms
- and any scoured vegetation or erosion control blanket shall be repaired.

Multiple orifice structure risers and spillways will be inspected on an annual basis.

The permanent pool areas will be inspected on a monthly basis.

Sediment for-bays will be inspected on a monthly basis.

Pond outfalls will be inspected on an annual basis and any scoured vegetation or erosion control blanket shall be repaired.

Wetlands vegetation will be inspected and maintained on an annual basis.

Additional items shall be addressed on a monthly basis as part of the maintenance of the Stormwater Management Practices. Pond buffer areas will be inspected for encroachment as well as clear maintenance access and any potential public hazards. Any graffiti will be removed as well as areas seeded for aesthetic reasons.

Pipe inlets and outlets should be inspected annually and after all major storm event. Debris and litter should be removed and areas inspected for scour or erosion. Bare areas should be vegetated and outlet protection replaced as needed. All pipe outlets and inlets should be checked for clogging and the accumulation of sediment, and cleaned as needed.

Catch basins and manholes should be inspected annually and after all major storm events (e.g. after each event where 2.8 inches of rainfall is exceeded in a 24 hour period). Debris and litter should be removed from the basins and manholes during these inspections. Sediment will have to be removed from the basins either manually or by a vacuum truck when 10% of the available capacity has been used up (e.g., for a 12" sump, when the depth of sediment exceeds 1.2"). In addition, the structures should be repaired and/or replaced on an as-needed basis.

The collection system pipe will be inspected annually for clogging and accumulation of sediment and be cleaned as needed.

### **EROSION AND SEDIMENT CONTROL**

### **EROSION AND SEDIMENT CONTROL MEASURES**

- A combination of vegetative and structural control measures shall be utilized during active construction to minimize the potential for water quality violations due to project activity.
- A description of the temporary structural measures proposed is as follows:
- \_ Inlet Protection: During development of lots along J Street inlet protection shall be installed along catch basins to reduce the possibility of sediment laden stormwater entering the stormwater collection system.
- Silt Fence: During development of the proposed lots silt fence will be installed along the R.O.W.

  of lots draining towards the road, and along the rear of lots draining away from the road. Silt fence will be located along the edge of the existing wetland during construction of the Mckinley Court road extension.
- Turbidity Barrier: Dual turbidity barriers shall be installed in the Brown's pond backwater prior to development of the J street subdivision. An existing temporary riser on the culvert draining the backwater sections shall be removed in 6" sections to return the water surface to it's normal elevation.
- **Erosion control Blanket:** Single net straw blanket shall be installed over seed on portions of the stormwater management ponds that do not readily vegetate due to fluctuating water levels.
- Stabilized construction Entrance: Until stabilization of the J street extension a stabilized entrance shall be installed at the end of the Mckinley Court. Prior to development of any of the lots, a stabilized entrance shall be installed on each lot.
- Sediment Basin: During construction of J Street and the adjoining lots, runoff from disturbed areas will be diverted to a temporary sediment basin from the roadside collection system. The existing SMP-2 downstream of the site will be excavated and temporarily retrofitted with Sediment
   Basin outlets to provide further storage during construction. SMP2 was modified for usage as a sediment basin during construction of the Mount Airy Estates Subdivision and shall continue to be utilized as such until completion of the J Street Subdivision.

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Surface Sand Filter: during construction of J Street and the adjoining lots SMP 2 will be temporarily retrofitted with an underdrain and clean sand in the forebay. SMP 3 will be temporarily retrofitted with an underdrain and clean sand. Discarded sand media from the basins will be utilized as bedding material in trenches during construction. Surface sand filters where installed during construction of the Mount Airy Estates Subdivision and shall continue to be utilized as such until completion of the J Street Subdivision.

- A description of the vegetative measures proposed is as follows:
- Mulching: All seeded areas shall be covered with 2 tons per acre with small grain straw mulch to provide initial erosion control while vegetative cover is established.

Seeding: All disturbed areas shall be seeded with temporary or permanent seed at the completion of regular construction activity. Temporary seeding shall consist of 30 lbs/acre of ryegrass during the Spring, summer and early fall. Temporary seeding shall consist of 100 lbs/acre of cereal rye during the fall and winter. Permanent seeding shall consist of a mixture of the following:

Creeping red fescue 20 lbs/acre
Tall fescue 20 lbs/acre
Perennial Ryegrass 5 lbs/acre
Birdsfoot Trefoil 10 lbs/acre

- \_ A description of the permanent structural measures proposed is as follows:
- Land Grading: Land grading of various slopes shall take place throughout development. All graded areas shall be seeded and mulched (see above) once work is completed.
- Rock Outlet Protection: Rip rap aprons shall be constructed at pipe outlets and shall be lined with stone of a maximum diameter of nine inches and a minimum of half the stone shall be greater then six inches in diameter.
- Erosion Control Blanket: Polypropylene double net blanket shall be installed over seed along earthen outlet structures where scour has prevented vegetative cover stabilizing.

### **EROSION AND SEDIMENT CONTROL MAINTENANCE**

Vegetative and structural erosion control practices shall be inspected, maintained, repaired, or cleaned as per the Construction Inspection Log on a weekly basis, or after rain events greater then 0.5" over 24 hours.

### POLLUTION PREVENTION MEASURES

Non structural stormwater controls will focus on preventing non-sediment related pollutants from entering stormwater runoff, sediment control structures, storm drainage systems, and receiving waterbodies. Pollutants that may be generated on a construction site and could potentially enter stormwater runoff from the site if not controlled include gasoline, oils, grease, paints, solvents, paper, plastics, Styrofoam, aluminum cans, glass bottles, solid or liquid waste and raw materials such as sand, aggregate and cement. "Good housekeeping" practices shall be used to prevent these pollutants from entering the site stormwater discharges.

- Solid waste shall be disposed of in waste receptacles of adequate capacity at convenient locations to site workers. Regular collection and disposal of the collected wastes shall occur as needed.
- Storage areas will be protected from stormwater in accordance with any manufacturers guidelines for storage of chemicals, paints, solvents, acids, pesticides, fertilizers, or other potential pollutants.
- Raw construction materials shall be stored in areas controlled by retention-type sediment control devices.
  - Equipment wash down areas shall be designated on site and in areas draining to regularly maintained sediment control devices. Equipment maintenance areas that are protected from stormwater shall be designated and shall include appropriate waste receptacles for spent oils, gasoline, grease and solvents. Accumulated waste shall be regularly collected as needed.
- Sanitary facilities shall be provided in convenient locations to site workers and shall be adequately maintained

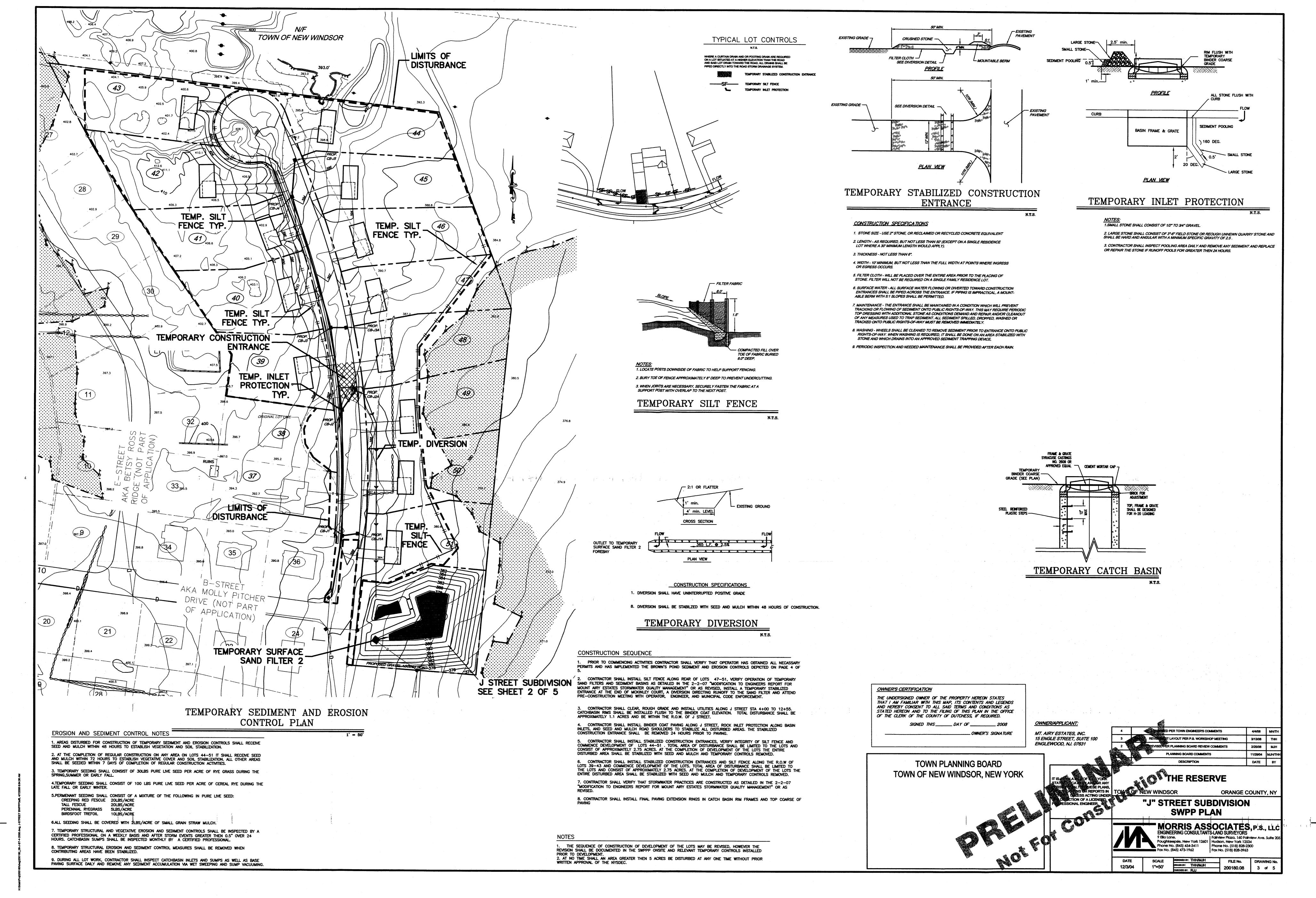
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### IV. CONCLUSION

This modification will minimize erosion and sediment problems on land undergoing urban development as well as address concerns related to meeting New York State Department of Environmental Conservation pollutant removal goals, reduce channel erosion, prevent overbank flooding, and help control extreme floods.

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<del>-</del>	APPENDIX A
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BROWNS POND AREA SEDIMENT AND EROSION CONTROL

EROSION AND SEDIMENT CONTROL NOTES

1. BROWN'S POND SEDIMENT AND EROSION CONTROLS SHALL BE IMPLEMENTED PRIOR TO COMMENCING DEVELOPMENT OF THE J STREET SUBDIVISION.

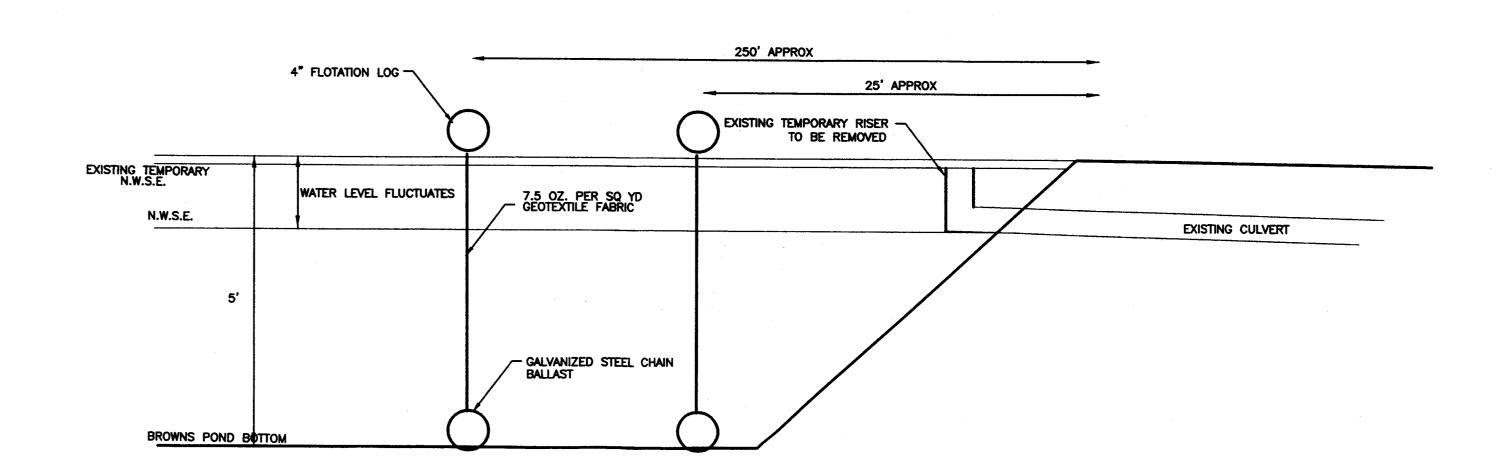
2.TEMPORARY TURBIDITY BARRIERS SHALL BE INSTALLED IN BROWN'S POND PRIOR TO COMMENCING REMOVAL OF EXISTING TEMPORARY RISER. RISER SHALL BE LOWERED IN 6" SEGMENTS AND ONLY WHEN THE WATER SURFACE IS FLUSH WITH THE RISER ELEVATION.

3.PERMENANT SEEDING SHALL BE APPLIED TO ALL BARE BASIN SLOPES AND WEIRS AND SHALL CONSIST OF A MIXTURE OF THE FOLLOWING IN PURE LIVE SEED:

CREEPING RED FESCUE 20LBS/ACRE TALL FESCUE 20LBS/ACRE PERENNIAL RYEGRASS 5LBS/ACRE

4.ALL SEEDING SHALL BE COVERED WITH 2LBS/ACRE OF SMALL GRAIN STRAW MULCH. 5.SEEDED BASIN WEIRS SHALL BE STABILIZED WITH PERMANENT EROSION CONTROL BLANKET. 6.POND BANKS THAT DO NOT INITIALLY ESTABLISH VEGETATION SHALL BE RESEEDED AND STABILIZED WITH TEMPORARY EROSION CONTROL BLANKET UNTIL VEGETATION IS ESTABLISHED. 7. TEMPORARY STRUCTURAL AND VEGETATIVE EROSION AND SEDIMENT CONTROLS SHALL BE INSPECTED BY A CERTIFIED PROFESSIONAL ON A WEEKLY BASIS AND AFTER STORM EVENTS GREATER THEN 0.5" OVER 24

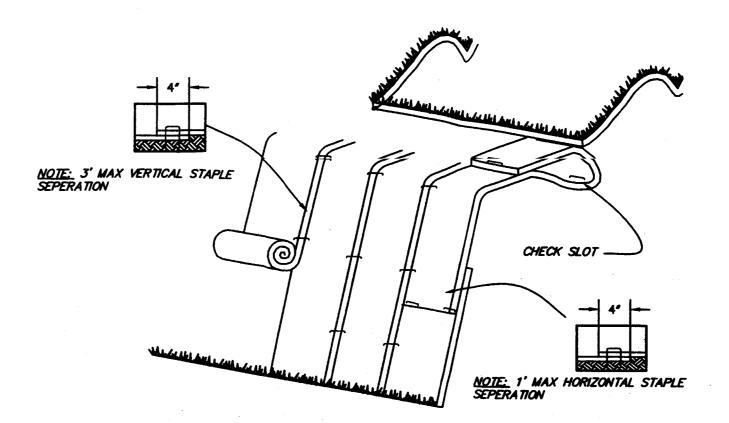
8. TEMPORARY STRUCTURAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WHEN CONTRIBUTING AREAS HAVE BEEN STABILIZED.



# TEMPORARY TURBIDITY BARRIER

SHALL BE ANCHORED WITH MORTAR BLOCKS ATTACHED AT EACH END AND EVERY 50'

BIDITY BARRIER MODEL 1.M AS MANUFACTURED BY AERFLO OR APPROVED EQUAL



PRODUCT NOTES:

1. TEMPORARY EROSION CONTROL BLANKET SHALL BE ECS-1 STRAW SINGLE NET BLANKET AS MANUFACTURED BY EASTCOAST EROSION BLANKETS OR EQUIVILANT. PERMENANT BLANKET SHALL BE ECP-2 POLYPROPYLENE DOUBLE NET AS MANUFACTURED BY EASTCOAST EROSION BLANKETS OR 2. CONTRACTOR SHALL REVIEW AND FOLLOW MANUFACTURERS SPECIFICATIONS DURING INSTALLATION
3. CHECK SLOTS SHALL BE INSTALLED AT THE TOP, BOTTOM AND AT 25' INTERVALS ALONG THE
SLOPE OF THE MAT.
4. PARELLEL BE OVERLAPPED A MINIMUM OF 4" AND SECURED WITH STAPLES PLACED 3' APART ALONG THE SLOPE. 5. BLANKETS MAY BE JOINED VERTICALY USING A MINIMUM 4" OVERLAP AND STAPLES LOCATED 12" ACROSS THE WIDTH OF THE OVERLAP.
6. COVERED AREAS SHALL BE SEEDED PRIOR TO BLANKET INSTALLATION

EROSION CONTROL BLANKET

OWNER'S CERTIFICATION

THE UNDERSIGNED OWNER OF THE PROPERTY HEREON STATES
THAT I AM FAMILIAR WITH THIS MAP, ITS CONTENTS AND LEGENDS
AND HEREBY CONSENT TO ALL SAID TERMS AND CONDITIONS AS
STATED HEREON AND TO THE FILING OF THIS PLAN IN THE OFFICE OF THE CLERK OF THE COUNTY OF DUTCHESS, IF REQUIRED.

> SIGNED THIS \_\_\_\_\_ DAY OF \_\_\_\_\_ 2008 \_OWNER'S SIGNATURE

TOWN OF NEW WINDSOR, NEW YORK

OWNER/APPLICANT: MT. AIRY ESTATES, INC. 15 ENGLE STREET, SUITE 100 ENGLEWOOD, NJ. 07631

"J" STREET SUBDIVISION

ED PER TOWN ENGINEER'S COMMENTS

ORANGE COUNTY, NY

MORRIS ASSOCIATES, P.S., LLC ENGINEERING CONSULTANTS-LAND SURVEYORS

9 Eliks Lane, Fairview Plaza, 160 Fairview Ave. Suite 205

DESIGNED BY: THH/MJH FILE No. DRAWING No. DRAWING No. 4 of 5